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09/617,663	07/17/2000	David Edward Gindelberger	2000U004.US	8193

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EXAMINER

PASTERCZYK, JAMES W

ART UNIT	PAPER NUMBER
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1755

DATE MAILED: 10/21/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/617,663

Applicant(s)

Gindelberger et al.

Examiner

J. Pasterczyk

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on Feb 19, 2002
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-23 is/are pending in the application.
- 4a) Of the above, claim(s) 1-15 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 16-23 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☒ Claims 1-23 are subject to restriction and/or election requirement.

## Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.  
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some\* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\*See the attached detailed Office action for a list of the certified copies not received.

- 14) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s). 5 6) ☐ Other:

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1. Restriction to one of the following inventions is required under 35 U.S.C. 121:

- I. Claims 1-15, drawn to a process for polymerization, classified in class 526, subclass 134.
- II. Claims 16-23, drawn to catalysts and methods of making them, classified in class 502, subclass 102.

2. The inventions are distinct, each from the other because of the following reasons:

Inventions II and I are related as product and process of use. The inventions can be shown to be distinct if either or both of the following can be shown: (1) the process for using the product as claimed can be practiced with another materially different product or (2) the product as claimed can be used in a materially different process of using that product (MPEP § 806.05(h)). In the instant case the catalyst would be useful in hydrogenation reactions, and other materially different catalysts are known to be capable of olefin polymerization, e.g. metallocenes, Ziegler-Nattas, chromium oxides, etc.

3. Because these inventions are distinct for the reasons given above and have acquired a separate status in the art as shown by their different classification, restriction for examination purposes as indicated is proper.

4. During a telephone conversation with Lisa Kimes Jones, Esq., on 8/15/02, a provisional election was made with traverse to prosecute the invention of group II, claims 16-23. Affirmation of this election must be made by applicant in replying to this Office action. Claims 1-

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15 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

5. Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

6. The examiner notes use of the term "system" throughout the present specification and claims. Absent applicants' amendment to denote otherwise, this term will be considered to mean the 35 USC statutory class of invention "composition".

7. Claims 16-19 and 21-23 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claim 16, l. 2, insert commas after "compound", "activator", and "material". In the first line after the structures change "may be" to --are-- for definiteness, in the third line after the structures start the line with --and-- and insert --further-- after "may not be"; also change "may or may not be" to --is or is not--. In labeled line 8 change "R" to --R<sup>1-5</sup>--, then in the following line delete all after "which" inclusive. In the recitation of the activator, the coefficient n better be 3; otherwise it would be a truly unique and novel aluminum compound since the only valence state currently known to aluminum in compounds is 3+. In labeled line 15, the broad and omnibus

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recitation "monoanionic ligand" is followed by the narrower recitation "alkyl group, or represented by the formula ArHal". A broad range or limitation together with a narrow range or limitation that falls within the broad range or limitation (in the same claim) is considered indefinite, since the resulting claim does not clearly set forth the metes and bounds of the patent protection desired. Note the explanation given by the Board of Patent Appeals and Interferences in *Ex parte Wu*, 10 USPQ2d 2031, 2033 (Bd. Pat. App. & Inter. 1989), as to where broad language is followed by "such as" and then narrow language. The Board stated that this can render a claim indefinite by raising a question or doubt as to whether the feature introduced by such language is (a) merely exemplary of the remainder of the claim, and therefore not required, or (b) a required feature of the claims. Note also, for example, the decisions of *Ex parte Steigewald*, 131 USPQ 74 (Bd. App. 1961); *Ex parte Hall*, 83 USPQ 38 (Bd. App. 1948); and *Ex parte Hasche*, 86 USPQ 481 (Bd. App. 1949).

In claim 18 it is not clear if "aluminum" refers to the atom in the activator or to the activator as a whole via an R group.

In claim 19, the subscript 4 suggests that aluminum may be in an electrically neutral tetravalent state, which is unknown to science. In l. 6, everything after and including the semicolon is prolix and fails to further limit claim 16, which already recites these limitations.

Claims 21-23 should apparently depend from claim 20 since claim 20 is a process claim while claim 19 is a composition claim.

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The section of claim 21 following the structures has the same problems as claim 16 following the structures. In addition, the last line recites “preferably”, hence it is not clear if the following recitation is a limitation or an illustration.

In claim 23, in the formula, if the subscript were actually 4 this would imply tetravalent electrically neutral aluminum, which is unknown. Alternatively, the bond between E and the aluminum atom would have to be a dative bond, i.e. Sup-E would have to be electrically neutral, which does not appear to be possible. Labeled line 5 recites a broad omnibus limitation “monoanionic ligand” and is followed by the narrower recitation “alkyl group . . . [or] formula ArHal”. As noted above, broad limitations followed by narrower limitations leave it unclear if the narrower limitations are illustrative or limitative. The last line recites “preferably”, which is impermissible for the reasons given above.

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. Claims 16-18 and 20-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over each of Bell, USP 4,981,931 (hereafter referred to as Bell I), Bell, USP 5,082,909 (hereafter referred to as Bell II), Bell, USP 5,319,042 (hereafter referred to as Bell III), and Whiteker et al.,

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USP 6,333,389 (hereafter referred to as Whiteker) in view of Oi et al., USP 6,423,807 (hereafter referred to as Oi).

Each of Bell I (examples 7-9), Bell II (tables 9 and 10 examples using aluminum-containing cocatalysts), Bell III (tables 9 and 10 examples using aluminum-containing cocatalysts), and Whiteker (col. 1, l. 65 to col. 3, l. 15; col. 6, l. 60-66; col. 9, l. 10-20) disclose the invention substantially as claimed.

Each of the primary references lacks explicit disclosure of the catalyst being supported, although Whiteker discloses that the catalyst may be used in gas phase or slurry polymerizations, which one of ordinary skill in the art recognizes requires a supported catalyst for use in e.g. the Unipol™ process.

However, Oi teaches explicitly that a metal phenoxide catalyst having an aluminum alkyl cocatalyst may be supported on various inorganic oxide support materials (col. 21, l. 18-22).

It would have been obvious to one of ordinary skill in the art to apply the teaching of Oi to the disclosure of any of Bell I-III or Whiteker with a reasonable expectation of obtaining a highly-useful olefin polymerization catalyst and method of making it with the expected benefit of the catalyst being usable in slurry or gas phase polymerizations.

10. Claims 16-23 are rejected under 35 U.S.C. 103(a) as being unpatentable over each of Bell I-III and Whiteker in view of Oi as applied to claims 16-18 and 20-22 above, and further in view of WO 00/04058 (hereafter referred to as Holtcamp).

The disclosures and teachings of the primary references have been discussed above.

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None of the primary references explicitly discloses how an aluminum alkyl compound is bound to the surface of an inorganic oxide support, although it is conventionally known that the surface oxide or hydroxide groups may react with an alkyl group of the cocatalyst, eliminating an alkane and forming an oxygen<sup>A</sup>-aluminum bond.

However, Holtcamp teaches this explicitly on p. 18, l. 22-25.

It would have been obvious to one of ordinary skill in the art to apply the teaching of Holtcamp to the disclosures of the primary references with a reasonable expectation of obtaining a highly-useful olefin polymerization catalyst and method of making it with the expected benefit of the cocatalyst providing better industrial economics as well as being more useful in gas phase and slurry polymerizations than the current catalysts.

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to J. Pasterczyk whose telephone number is (703) 308-3497. The examiner can normally be reached on M-F from 9 to 5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mark Bell, can be reached on (703) 308-3823. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9310 for normal faxes, 872-9311 for after final faxes.


Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.



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Mark L. Bell  
Supervisory Patent Examiner  
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J. Pasterczyk

10/17/02